from Round Island, with the notes on the same by Mr. Scott. My conclusions are as follows :—

The rocks of the island appear to be entirely of organic or volcanic origin.

The lower part of the island consists of a limestone made up of shell and coral (?) detritus, cemented into a hard and crystalline rock (see specimens 1, 3, 15). Masses of this rock of greater hardness than usual seem to have resisted denudation, and stand up as pinnacles among the overlying stratified tuffs (specimen 14). Fissures in the various rocks are filled with a stalagmitic deposit of calcic carbonate (specimen 8). But the great mass of the island would appear to be made up of stratified *palagonite tuffs*, some coarse-grained, others very fine-grained. These palagonite tuffs, which closely resemble the similar rocks in Sicily and Iceland, are very beautiful and interesting varieties ; and, besides the hydrous basic glass known as palagonite, contain various beautiful zeolites and other minerals (specimens 4, 5, 6, 7, 9, 10, 11, 12).

The lavas associated with these tuffs appear to occur both as ejected blocks and in lava-currents, and consist of a highly scoriaceous basalt rich in olivine (specimens 2 and 13).

These are the general facts concerning the structure of the island which are revealed by a general examination of the specimens with Mr. Scott's interesting notes.

I return these last with this letter. The specimens I retain for the present, as some among them will, I think, repay a minuter study than I have yet been able to afford time for. JOHN W. JUDD.

NOTES.

THE Medals and Funds to be given at the anniversary meeting of the Geological Society of London on February 20 have been awarded by the Council as follows : the Wollaston Medal to Prof. J. W. Judd, F.R.S. ; the Murchison Medal to Prof. W. C. Brögger, of Christiania ; the Lyell Medal to Prof. T. McKenny Hughes, F.R.S. ; and the Bigsby Medal to Dr. G. M. Dawson ; the balance of the Wollaston Fund to Mr. R. Lydekker ; that of the Murchison Fund to Mr. R. Baron ; and portions of the Lyell Fund to Messrs. C. J. Forsyth Major and G. W. Lamplugh.

AT the meeting of the Institution of Civil Engineers on Tuesday, M. Carnot, President of the French Republic, was elected an honorary member.

THE forty-fourth annual general meeting of the Institution of Mechanical Engineers will be held on Thursday evening, January 29, and Friday evening, the 30th, at 25 Great George Street, Westminster. The chair will be taken by the President, Mr. Joseph Tomlinson, at half-past seven p.m. on each evening. After the presentation of the annual report, and the transaction of other business, the following papers will be read and discussed, as far as time permits :—On some different forms of gas furnaces, by Mr. Bernard Dawson, of Malvern ; on the mechanical treatment of moulding sand, by Mr. Walter Bagshaw, of Batley ; fourth report of the research committee on friction : experiments on the friction of a pivot bearing.

THE Royal Microscopical Society will hold its annual meeting on Wednesday evening, the 21st inst., at 8 o'clock. The President will deliver an address.

THE annual general meeting of the Royal Meteorological Society will be held at 25 Great George Street, Westminster, on Wednesday, the 21st inst., at 8.15 p.m. It will be preceded by an ordinary meeting, beginning at 7 p.m., at which the following papers will be read :—Note on a peculiar development of cirrus cloud observed in Southern Switzerland, by Mr. Robert H. Scott, F.R.S. ; and some remarks on dew, by Colonel W. F Badgley, F.R.Met.Soc.

THE Council of the Royal Meteorological Society have arranged to hold at 25 Great George Street, Westminster, from March 17 to 20, an Exhibition of rain gauges, evaporation gauges, percolation gauges, and kindred instruments. The Exhibition Committee invite co-operation in this undertaking. They will also be glad to show any new meteorological instruments or apparatus invented, or first constructed, since last March ; as well as photographs and drawings possessing meteorological interest. Anyone willing to co-operate in the proposed Exhibition should furnish Mr. William Marriott, the Secretary, not later than February 10, with a list of the articles he will be able to contribute, and an estimate of the space they will require.

THE Sanitary Institute has made arrangements for a course of sixteen lectures for the special instruction of those who may wish to obtain knowledge of the duties of sanitary officers. These lectures, which will be a continuation of previous courses, will be delivered at the Parkes Museum, and will be illustrated with diagrams, drawings, and models. The first lecture will be given on January 30 by Sir Douglas Galton, who will deal with ventilation, warming, and lighting. Among the other lecturers will be Mr. H. Law, Dr. Louis Parkes, and Prof. W. H. Corfield.

DR. SYMES THOMPSON will deliver at Gresham College, on January 20 and the three following days, a course of four lectures on the preservation of health. He will deal with questions relating to healthy homes, healthy schools, and the early detection and prevention of disease.

MR. A. SIDNEY OLLIFF, late assistant in the Museum, Sydney, has been appointed to the newly-instituted office of Government Entomologist in the Department of Agriculture, New South Wales. His duties will be chiefly the study of insects affecting fruits and crops, whether injurious or beneficial, and publishing reports on the results for the information of farmers and horticulturists. According to the latest news as to the new insect pest, Mr. Olliff will not lack employment.

M. PATOUILLARD has been elected President, and MM. Prillieux and de Seynes Vice-Presidents, of the Société Mycologique de France.

THE death is announced of M. Clavaud, Professor of Botany at Bordeaux, author of the "Flora de la Gironde," of which two parts only have appeared, embracing the *Thalamifloræ* and the *Calycifloræ*. The work is characterized by its beautiful plates, and by the attempts to place on a scientific basis the genetic relationship of the various species with one another.

MR. GEORGE W. ORMEROD, of Teignmouth, died on January 6, at the age of eighty. He had been a member of the Geological Society of London for fifty-eight years, and geologists owe much to him for his classified index to the *Quarterly Journal* and other publications.

ACCORDING to a telegram from Rusk, Texas, two sharp earthquake shocks were felt there on January 8. Chimneys were thrown to the ground, and people awakened by the violence of the oscillations.

AT the meeting of the French Meteorological Society on December 2, M. Angot communicated the results of comparisons of the pressure and temperature observations at the Eiffel Tower during 1889 with the low-level stations. The night maxima and minima of pressure are less marked on the Tower than at the lower levels, as is also the case with mountain observations, and inversely for the day maxima and minima. For individual readings small variable differences were found between the actual pressure at the summit and the pressure calculated from observations at the base. Generally, during rapid falls of the barometer, the true pressure at the summit is lower than the calculated value, and higher when the barometer is rising. The temperature observations will be referred to subsequently. At the meeting of December 16 a discussion took place upon the trustworthiness of aneroid barometers, owing to their not always immediately returning to their original condition after a sudden rise or fall. The balance of opinion was in their favour. M. Doumet-Adanson communicated an account of a tornado at Fourchambault on October 1, 1890. Its sudden appearance there is supposed to be due to one of a series of bounds and rebounds which these meteors are sometimes reported to make. M. Angot was elected President of the Society for the ensuing year.

La Nature of January 3 describes a useful recording barometer brought out by MM. Redier and Meyer. In the upper part of a case with glass front is an aneroid, the elastic cover of which is connected with a metallic slip projecting over rotated paper below. At the end of this slip is a conical ink-holder with perforated point. Three times in the hour this descends to make a dot on the paper, and the dots form a curve of the variations of pressure. The instrument goes eight days without needing attention. For observers who do not want to keep a long record, but merely to compare the variations of the day with those of a few days previous, a recording cylinder with smooth white surface is supplied, on which the record can be wiped out. This number of *La Nature* has also an account of a new steam carriage for ordinary roads, which appears to work satisfactorily.

IN his presidential address to the Queensland Royal Sôciety, delivered on November 22, 1890, Mr. W. Saville-Kent spoke strongly in favour of the establishment of a well-appointed zoological station and marine biological laboratory in Queensland. The best site, he said, would be Thursday Island. Situated in Torres Straits, at a distance of twenty miles only from Cape York Peninsula, with a climate far more temperate than that of the mainland, and serving as a weekly or bi-weekly port of call to various lines of mail-steamers, this island is "a perfect paradise for the naturalist." In it is the central depot of the Torres Straits pearl and pearl-shell and the *bêche-de-mer* fisheries. Mr. Saville-Kent is of opinion that the acquirement of accurate knowledge concerning these products, with the application of approved methods of scientific culture, would very soon immensely increase their export value.

IN the current number of the *Revue Scientifique*, M. Hermann Fol has an interesting paper on what he calls the resemblances between husband and wife. The fact that such resemblances are not uncommon has often been noted, but the usual idea is that when they occur they are to be explained by the influence which husband and wife exert on one another in the course of years. M. Fol, however, maintains that in a large number of cases there is a more or less striking likeness from the beginning; and he draws the conclusion that in such instances the mutual attraction which leads to marriage is due to the qualities the lovers have in common, not to those in which they differ. His attention was first directed to the subject in Nice, which is visited by many newly-married people. He was so struck by the resemblances which he observed, or thought he observed, that he obtained the photographs of 251 couples who were not personally known to him, and in each case carefully noted the appearance of husband and wife. The general results he presents as follows:—

Couples.	Resemblances.		Non-resemblances.		Total.
		Per cent.		Per cent.	
Young ...	132 : about	66·66 ...	66 : about	33·33 ...	198
Old ...	38 : ,,	71·70 ...	15 : ,,	28·30 ...	53

THE Russian painter Krilof has for some time been engaged in painting the portraits of typical representatives of the various races included in the Russian Empire. In carrying out his purpose, he has undertaken many long journeys; and he has now a small gallery which ought to be of considerable value from an anthropological as well as from an artistic point of view. In the current number of *Globus* there is a good reproduction of one of these portraits. It represents with much force and insight a Kasak-Kirghiz.

THE director of the central dispensary at Bagdad has sent to *La Nature* a specimen of an edible substance which fell during an abundant shower in the neighbourhood of Merdin and Diarbékir (Turkey in Asia) in August 1890. The rain which accompanied the substance fell over a surface of about ten kilometres in circumference. The inhabitants collected the "manna," and made it into bread, which is said to have been very good and to have been easily digested. The specimen sent to *La Nature* is composed of small *sphérules*; yellowish on the outside, it is white within. Botanists who have examined it say that it belongs to the family of lichens known as *Lecanora esculenta*. According to Decaisne, this lichen, which has been found in Algeria, is most frequently met with on the most arid mountains of Tartary, where it lies among pebbles from which it can be distinguished only by experienced observers. It is also found in the desert of the Kirghizes. The traveller Parrot brought to Europe specimens of a quantity which had fallen in several districts of Persia at the beginning of 1828. He was assured that the ground was covered with the substance to the height of two decimetres, that animals ate it eagerly, and that it was collected by the people. In such cases it is supposed to have been caught up by a waterspout, and carried along by the wind.

MR. E. W. CARLIER writes in the current number of the *Entomologist* that one of the most remarkable features of the entomological record of 1890 was the extraordinary abundance of autumn larvæ. In a garden in Norwich, where he was staying during the month of September, everything was infested with larvæ, even to the ferns, which were in many cases almost entirely stripped of their green parts. The many-coloured larvæ of *Orgyia antiqua* (the common vapourer) were by far the most abundant, proving a perfect nuisance by their curious habit of constantly flinging themselves to the ground, from a wisteria arbour which spans the path. What could induce the insects to act in this manner he was unable to ascertain, as there was nothing but an iron garden-seat and the pebbles of the path to tempt them. This falling was not produced by wind or birds, or any other obvious cause, for, during perfect stillness of all their surroundings, they would fall by dozens upon the unfortunate occupants of the garden-chair. Nor was the habit confined to any particular age or period of the larva's existence, for among those that fell were small, large, and intermediate-sized individuals. Moreover, this habit caused a great mortality among them, for they were no sooner fairly down than they began to make for a white-washed wall which forms one boundary of the path, and attempt to climb up again to the arbour from which they fell. It so happened that many small garden spiders had elected to weave their webs from this wall to the iron framework of the arbour, and as the larvæ came to this part of their journey they often became entangled in the webs, were captured, and preyed upon by the small spiders.

THE *Zoologist* for January contains an interesting paper, by Messrs. W. E. Clarke and E. H. Barrett-Hamilton, on the Irish rat, which is "a melanistic form of *Mus decumanus*." The authors point out that this creature has a peculiar geographical distribution. In Ireland it is widely distributed, and not rare. The only known British localities in which it occurs are in the Outer Hebrides, where it has long been known to the inhabitants, and whence the authors have examined three specimens. It would appear to be quite unknown on the mainland of Britain, where all their endeavours to procure specimens have failed, though they would not be surprised to hear of the occurrence of a melanism of so common a creature as the brown rat. On the continent of Europe the only instance of the occurrence of black varieties of *Mus decumanus* known to the authors is the one recorded by A. Milne-Edwards (*Ann. Sci. Nat.*, 1871, xv. art. 7) for Paris, where, in 1871, it had been known for twenty years in the menagerie of the Museum, and is described as abundant and increasing in numbers.

PROF. J. MARK BALDWIN, writing in *Science* on "infant psychology," points out that this branch of inquiry has the great advantage of offering opportunities for the use of the experimental method. In experimenting on adults, psychologists are confronted with the difficulty that reactions are broken at the centre, and closed again by a conscious voluntary act. The subject hears a sound, identifies it, and presses a button. What goes on between the advent of the incoming nerve process and the discharge of the outgoing nerve process? Something, at any rate, which represents a brain process of great complexity. Anything that fixes this sensori-motor connection, or simplifies the central process, in so far gives greater certainty to the results. For this reason, experiments on reflex reactions are valuable and decisive where similar experiments on voluntary reactions are uncertain and of doubtful value. The fact that the child consciousness is relatively simple, and so offers a field for more fruitful experiment, is seen in the mechanical reactions of an infant to strong stimuli, such as bright colours. Of course, this is the point where originality may be exercised in the devising and executing of experiments. After the subject is a little better developed, new experimentation will be as difficult here as in the other sciences; but at present the simplest phenomena of child life and activity are open to the investigator.

THE "Year-book of Pharmacy" has just been published. It contains abstracts of papers relating to pharmacy, materia medica, and chemistry, contributed to British and foreign journals from July 1, 1889, to June 30, 1890; with the transactions of the British Pharmaceutical Conference at the twenty-seventh annual meeting, held at Leeds in September 1890. The volume has been carefully compiled, and presents a great mass of scientific information. Its utility is greatly increased by a full index.

MESSRS. IMRAY AND SON have issued, for the use of candidates preparing for the Board of Trade examinations, a syllabus of examination in the laws of compass deviation and in the means of compensating it, with explanatory notes and answers, by W. H. Rosser. The paper was written as an appendix to the author's "Deviation of the Compass, considered practically."

MESSRS. DULAU AND CO. have issued a catalogue of zoological and palæontological works which they are offering for sale. The list includes many valuable books.

THE cadmium and magnesium analogues of zinc methide and ethide have been prepared and investigated by Dr. Löhr in the laboratory of Prof. Lothar Meyer at the University of Tübingen, and an account of the work is published in the latest number of *Liebig's Annalen*. The alkyl compounds of cadmium and magnesium have formed the subject of several previous researches, but the results hitherto obtained have been mainly negative, and nothing was known with certainty concerning them. The methide and ethide of cadmium are liquid bodies, spontaneously inflammable when gently warmed. The similar compounds of magnesium are, contrary to expectation, solid substances, which possess the almost unique property of being spontaneously inflammable in carbon dioxide gas, as well as in air, being capable of actually extracting oxygen from its most stable combination with carbon. Cadmium methide was obtained by the following process:—Metallic cadmium, either in filings or pieces of sticks, was placed in a tube closed at one end together with a thin glass bulb containing methyl iodide. The tube was exhausted by the Sprengel pump and sealed. It was then heated to 110° C. for 24 hours. At the end of this time all the methyl iodide had disappeared, and the tube contained a crystalline mixture of cadmium iodide and cadmium methyl iodide, $Cd(CH_3)I$, and gaseous ethane, C_2H_6, at high pressure. After opening the tube so as to permit of the escape of the ethane, the crystalline residue was subjected to dry distillation; when the temperature of the paraffin bath in which the tube was heated reached 260° a small quantity of a liquid distilled over, and was caught in a receiver filled with carbon dioxide. Ten similar experiments were made, and the total product of this liquid was fractionally distilled in a small apparatus also filled with carbon dioxide. By this means the greater part of the admixed methyl iodide was removed, and a heavy residual liquid obtained which was found to consist mainly of cadmium methide, $Cd(CH_3)_2$. Cadmium methide is a clear heavy liquid of most unpleasant odour, violently affecting the respiratory organs, and producing a most persistent nauseous metallic taste in the mouth. It boils at about 105° C. On gently warming it spontaneously inflames, burning with a brilliant sooty flame producing thick clouds, which, according to the amount burnt, take a dark green or a reddish-brown tint. It oxidizes very rapidly to a white mass of ethylate, $Cd(OCH_3)_2$. It reacts most violently with water, producing great heat, and evolving marsh gas. Dilute hydrochloric acid acts similarly, methane being evolved and cadmium chloride formed:

$$Cd(CH_3)_2 + 2H_2O = Cd(OH)_2 + 2CH_4;$$
$$Cd(CH_3)_2 + 2HCl = CdCl_2 + 2CH_4.$$

The liquid solidifies to a white crystalline mass when the vessel containing it is immersed in a freezing mixture. Cadmium ethide is prepared with greater difficulty than the methide. It is a liquid much resembling the methide in properties. Magnesium methide is a solid obtained, mixed with magnesium iodide, when magnesium filings or ribbon are heated in a sealed tube with methyl iodide and acetic ether, methyl iodide alone having no action. It is also obtained mixed with globules of mercury when magnesium is heated with mercury methide in a sealed tube. Its most remarkable properties are its intense action with water, incandescence usually occurring with ignition of the evolved gas; and its spontaneous inflammability in carbon dioxide, the combustion being accompanied by beautiful scintillations. The ethide is a very similar substance.

THE additions to the Zoological Society's Gardens during the past week include two Toque Monkeys (*Macacus pileatus*), a Starred Tortoise (*Testudo stellata*) from Ceylon, presented by Mr. W. J. Bosworth; a Peregrine Falcon (*Falco peregrinus*), British, presented by Mr. A. C. Ionides; a Humboldt's Lagothrix (*Lagothrix humboldti*) from the Upper Amazons, purchased.

OUR ASTRONOMICAL COLUMN.

SPECTROSCOPIC OBSERVATIONS OF SUN-SPOTS.—The *Monthly Notices of the Royal Astronomical Society* for December 1890 contains the main conclusions deduced by the Rev. A. L. Cortie, S.J., from the sun-spot observations made at the Stonyhurst College Observatory in the years 1882–89. The region of the spectrum in which observations have been made is between the lines B and D. The widening of the lines in the sun-spot spectra observed has generally been reckoned in tenths of their